REGISTRATION OF GERMPLASMS
nomus grandis grandis Boheman); bollworm (Heliothis zea Bod-
die); or tobacco budworm (H. virescens Fab.). Its superior per-
formance may be due to rapid fruiting and a shorter exposure of
tender fruiting parts to insect attacks. The prolific nature of
Pee Dee 6520 may partially compensate for insect injury to fruit-
ing parts, because they are replaced more rapidly in this
line than in other cultivars. Seed (25 g) of this breeding stock
may be obtained from AR, SEA, USDA, Pee Dee Experiment
Station, Florence, SC 29503.

REGISTRATION OF PEE DEE 8619
GERMPLASM LINE OF COTTON

(Peace Stage GP 531)
T. W. Culp and D. C. Harrell\^a

Pee Dee 8619 (GP 51), a breeding line of cotton (Gossypium
hirsutum L.), was released by AR, SEA, USDA and the South
Carolina Agricultural Experiment Station in 1978. This breeding
line represents a major improvement in lint yield and fiber
quality.

Pee Dee 8619 was developed by pedigree selection from the cross
of Pee Dee 4401 X ‘MO-DEL’. Pee Dee 4401 (Qo) was de-
veloped from a series of complex backcrosses and composite crosses of a G. barbadense L. strain, with high lint percentage, ‘Earlistaple’ (Coker 100 Wilt), and ‘Auburn 56’. MO-DEL was also derived from a series of complex crosses involving ‘Pan-
dora’, ‘Early Fluff’, Cook-Empire-Tanguis, TH 108, Auburn 56, and Auburn 56-5174 at the Missouri Agricultural Experimental
Station. Pee Dee 8619 is from the increase of seed from a single F1
plant selection.

Pee Dee 8619 produced erratic yields at some locations during early testing in Georgia and South Carolina, but these yields generally equaled those of ‘Coker 201’. Yields were interme-
diate in the 1971 Regional High Quality Cotton Variety Test, but they were equivalent to yields from commercial checks test-
ed in the southeastern region.

Pee Dee 8619 possesses excellent fiber quality in the medium
fiber length range, with a significant increase in fiber and yarn
strength over the check cultivars. It has produced some unusual
combinations of lint yield, fiber strength, and fiber elongation in crosses with other Pee Dee lines and southeastern cultivars
(1).

Pee Dee 8619 also possesses an unidentified source of resis-
tance to Heliothis spp. (2, 3). Injury to squares and
the number of live worms per 100 squares is generally half that on the commercial check cultivars, but yields generally have been significantly reduced by the extremely heavy insect infesta-
tions that develop in host-plant resistance studies. In 1977, Pee
Dee 8619 produced 1,272 kg/ha of seed cotton compared with 557 kg/ha for Newville 218 and Delapine 1, re-
spectively, when tested under a low rate (0.056 kg Al/ha) of
synthetic pyrethroid insecticide applied at 5- to 7-day intervals
for 12 July in South Carolina. Because yields produced with a high rate (0.168 kg Al/ha) of synthetic pyrethroid have been
similar, a savings of $74.00/ha is possible with this resistant line.
Seed (25 g) of this breeding line may be obtained from AR, SEA,
USDA, Pee Dee Experiment Station, Florence, SC 29503.

\^a Registered by the Crop Sci. Soc. Am. Published as Journal
Paper 1637 of the South Carolina Agric. Exp. Stn. Accepted
2 July 1979.

\* Research agronomist and research agronomist (retired), AR,
SEA, USDA, Pee Dee Exp. Stn., Florence, SC 29503.

REFERENCES
86. (Absr.)
2. ——, H. M. Taft, and A. R. Hopkins. 1977. Reaction of
several cultivars to cotton insects in South Carolina. Belt-
97. (Absr.)
3. ——, ——, and ——. 1978. Response of cotton cul-
tivars tolerant to Heliothis spp. under three insecticide regimes.
84. (Absr.)

REGISTRATION OF EIGHT TRIPLOID
HOP POLLINATORS

(Reg. No. GP 6 to GP 15)
Alfred Haunold, C. E. Hornor, and Gail B. Nickerson\^a

Pollen production and synchronization of flowering dates of male and female hop plants (Humulus lupulus L.) are im-
portant considerations for yield stimulation and to reduce seed
in seeded hop yards. Unfortunately, these factors are frequently
overlooked by hop growers who plant male hops in their fields to
boost yields.

The feasibility of using triploid pollinators for yield stimu-
lation of female hop cultivars was demonstrated previously (2, 4).
Under commercial conditions in Oregon, a yield in-
crease of 50% over the unseeded control was achieved with only
a moderate increase in production of undesirable seeds.
The higher yield was due to increased cone weight and size,
particularly of the bract-, bracteole-, and rachis-(strig) com-
ponents of the cones (4).

Eight triploid (3x = 30) male hop genotypes from two genetic backgrounds (Table 1) were developed cooperatively by AR-
SEA-USDA and the Oregon Agricultural Experiment Station. They are suitable for cone yield stimulation and reduced seed
set of medium to late flowering hop cultivars under Oregon
conditions. The eight genotypes are vigorous, monocious but
predominantly male genotypes. Their flowering branches (side
arms) are normally 50 to 120 cm in length and they produce large numbers of male flowers. Occasionally at the end of a side
arm or secondary lateral, a female flower develops into a cone.
Cone production, however, is negligible; less than 50 cones per plant are typically produced.

All eight genotypes are good pollen producers and are re-
sistant to downy mildew crown infection caused by Pseudopera-
onaspora humuli (Miy. et Tak). G. W. Will. (Table 1). Genotype
21104M was rated as moderately resistant to downy mildew in-
fecation in a replicated greenhouse test, but has been free of
downy mildew crown infection in field plots near Corvallis for
the past 6 years.

The eight pollinators have two different genetic backgrounds
(Table 1). Genotypes 21102M, 21104M, 21105M, and 21106M
originated from crosses made in 1967 on a colchicine induced
triploid 'Fuggle' (5). The other four genotypes originated from open-pollinated seed collected on two triploid sister selections obtained from open-pollinated seed collected on the
triploid cultivar USDA 56008 in 1967.

The eight genotypes differ in time of pollen shedding as indi-
cated in Table 1. Genotypes 21104M and 21105M flower late,
with peak pollen shedding between 18 and 30 July near Corvallis, Ore. They would, therefore, be suitable to pollinate
the last phase of late-flowering female cultivars such as 'Brewer’s Gold'. Genotypes 21106M and 21108M near Corvallis
shined their pollen about 12 to 18 July and they are suitable
pollinators for medium-late flowering cultivars such as 'Bullion' and 'Cascade' and early flowering Brewer's Gold plants. Geno-
types 21102M, 21175M, and 21178M flower about 5 to 7 days
earlier than the previous group and are suitable to cover the
initial flowering phase of medium-late cultivars and also the
last portion of early flowering cultivars such as 'Fuggle' (5 to
15 July).

To achieve good pollen supply in commercial hop yards during the 2 to 3-week flowering range of most female cultivars in
Oregon, growers should plant males whose flowering coin-
cides with the maximum receptiveness of the target cultivar. They should also plant some pollinators to cover early- or late-
blooming plants in the field. For medium to late maturing hop cultivars in Oregon, this choice is available from pollina-
tors listed in Table 1.

Mature leaves of genotypes 21102M, 21104M, 21105M, and

\^a Contribution of A.R.-SEA-USDA and the Oregon Agric. Exp.
Stn. Published with approval of the Director of the Oregon Agric.

Research geneticist and research plant pathologist, respec-
tively, A.R.-SEA-USDA and Agricultural Chemistry, Oregon State Univ., Corvallis, OR 97331.